moving stories

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30 YEARS WORKING FOR YOU

SMRT

In 2017, SMRT Corporation Ltd (SMRT) celebrates 30 years of Mass Rapid Transit (MRT) operations.

Delivering a world-class transport service that is safe, reliable and customer-centric is at the heart of what we do.

We are Singapore's iconic multi-modal public transport operator and our MRT and light rail systems connect seamlessly with our island-wide bus, taxi and private vehicle services.

Throughout our 30 years of service, we have connected communities and transformed the way people live, work and play.

Moving Stories documents our beginnings, the expansion of our businesses, our challenges and our involvement with the community. The people who have been on this journey also reflect the personal experiences of our diverse workforce, past and present.

As we embark on the next leg of our journey, we look forward to the boundless opportunities to continue working for you.

VISION

Moving People, Enhancing Lives

MISSION

To be the people's choice by delivering a world-class transport service and lifestyle experience that is safe, reliable and customer-centric.

CORE VALUES

Safety & Service Excellence
Mastery
Responsibility & Respect
Teamwork
nurture
Integrity

SMRTAI

beginnings

The Rail Development

THE RAIL PROGRESS

1968 – 1981

Various studies conducted on the feasibility of a public train system

1982

Decision by Parliament to build a rail-based MRT system

1983

Mass Rapid Transit Corporation was set up to build and manage the train network

1987

Singapore Mass Rapid Transit Limited was incorporated to operate the MRT line

Operations began with inaugural service between Yio Chu Kang and Toa Payoh MRT stations

1988

Fifteen more stations opened and the MRT system was officially launched by Mr Lee Kuan Yew, Singapore's first Prime Minister

1990

Completion of the North-South and East-West Lines (NSEWL)

1996

Opening of the Woodlands Extension by Prime Minister Goh Chok Tong, and the loop was completed on the North-South Line

1999

Commencement of the Bukit Panjang Light Rail Transit (LRT)

THE EARLY DAYS

During the rolling good times of the 60s, Singapore was undergoing a sea of change.

The economy was growing and the standard of living was improving. The promise of a better life was becoming a reality. It was an exciting time for everyone.

In those days, car ownership was low and for most people, public transport was the only option. But public transport planning was non-existent. The system that was put in place had been born out of necessity rather than through careful design.

Buses, taxis and trishaws were the only choices of public transport available. The lack of seamless connectivity for the public transport system resulted in long and often inconvenient journeys.

Private operators ran the buses, which were poorly maintained and broke down frequently during service. Not only was the bus schedule different among operators, the bus routes were uncoordinated and the fares were confusing for commuters. Many areas were underserved as a result, and commuters would often have to walk a distance to their destinations.

The unregulated pirate taxis were an alternative to the inadequate public transport services. The drivers would often take as many passengers as they could to increase earnings, paying little heed to service quality and passenger safety.

Commuters were entirely at the mercy of the drivers.

By the late 70s, an efficient bus network was finally put in place. With a booming population and rising expectation for better public services, there was still an unmet need for a reliable and efficient public transport system to support the country's development. Construction of the MRT was finally underway in the 80s to meet the growing public transport demand.

The idea of building a rail system in Singapore was first mooted in the 1960s. The plan was to construct two main arteries — the North-South and East-West Lines — that would connect the four corners of the island. As it was a massive investment that would tax Singapore's economy, several studies were commissioned to explore the feasibility of the idea.

When the train proposal was raised in Parliament, it generated fierce debate on the merit of having an expensive public transport system when there was then already a more cost-effective bus system in place. Every ministry defended its viewpoint.

Minister for Communications and Labour Ong Teng Cheong supported the MRT proposal. He was convinced that the MRT would play a significant role in the country's economic growth and development. An efficient train system would enhance the world's perception of Singapore as an advanced nation with a high standard of living, comparable to cities like Toronto, Montreal, Chicago and Marseille.

There were concerns that the cost and impact of the mega train project could derail Singapore's economic growth. Aggressive projects, like the building of Changi Airport and public housing,

> "This is going to be the most expensive single project to be undertaken in Singapore. The last thing that we want to do is to squander away our hard-earned reserves and leave behind enormous debt for our children and our grandchildren. Now since we are sure that this is not going to be the case, we'll proceed with the MRT, and the MRT will usher in a new phase in Singapore's development and bring about a better life for all of us."
>
> MR ONG TENG CHEONG

were already taxing construction resources heavily. An MRT system would only strip the nation further of the limited construction resources which Trade and Industry Minister Dr Tony Tan felt should be channelled to address the more pressing need of public housing.

Finance Minister Dr Goh Keng Swee also felt that the rail system would be unnecessary — why burden the economy with a huge cost when there was already an efficient bus system in place?

The intensive debate led to the formation of a high-level study team of government officials and consultants in 1972 to recommend the public transportation system that would support Singapore's growth needs. The resulting Singapore Mass Transit Study concluded that a mass rail transit system would be the solution Singapore was looking for to meet future transport demands.

In 1975, the team went on to compare an "all-bus" versus a "bus-rail" system, and found that a "bus-rail" system would be a better alternative. The outcome of this report paved the way for further engineering studies in 1979 to develop the final route plans and cost estimates. The investment was projected to be $5 billion over a ten-year period. It would be the largest infrastructure project the country had ever embarked on.

An independent study team from Harvard University was commissioned in 1980 to validate the findings and recommendations from the reports. The Harvard team favoured the "all-bus" system, which could be easily scaled up to meet the nation's demand by increasing the feeder routes at less than half the cost of a "bus-rail" system.

A Comprehensive Traffic Study examined the Harvard team's proposal and found that an "all-bus" system would require dedicated bus lanes, which would occupy more than 40% of the Central Business District roads. Furthermore, half of the commuters would still have to make at least one bus transfer to reach their destinations. It became apparent that with Singapore's rising population and economic growth, an "all-bus"

system would be inadequate to meet the public transport demands in the long run. It was finally decided in 1982 that Singapore would require a rail-based urban transport system to support its growth.

Construction of the train network began in 1983. Singapore Mass Rapid Transit Limited (SMRT) was incorporated on 6 August 1987 to operate the MRT for the Mass Rapid Transit Corporation (MRTC), which was the owner, builder and regulator of the system. The MRTC's functions were subsumed under the Land Transport Authority (LTA) in 1995.

On 7 November 1987, operations between Yio Chu Kang and Toa Payoh MRT stations on the North-South Line commenced. The train ride on this stretch lasted just 10 minutes. By March 1988, the East-West Line was added, and the MRT stations between City Hall and Clementi became operational. By April 1988, daily ridership rose to more than 200,000 passengers.

An initial 10-year licence to operate the MRT was granted to SMRT. When the licence expired on 31 March 1998, a new 30-year Licence and Operating Agreement was signed between SMRT and LTA.

The MRT has proven to be a vital part of Singapore's public transport infrastructure. It has enhanced the nation's stature as a world-class destination and improved the living standard of Singaporeans.

Train operations between Yio Chu Kang and Toa Payoh MRT stations commenced on 7 November 1987

"When the Government first started recruiting for MRTC, I was young and raring for a challenge, so I went for the interview.

They asked me whether I saw myself as a 'railway man'. At that time, I was just a young engineer and did not understand the full implications of this question. After 30 years in the industry, I can now say that I am.

We had very little experience with trains back then. SMRT has come a long way, working through the ups and downs to become an internationally recognisable brand.

Today, the MRT has become the first choice of public transport for most people and train stations are convenient meeting points. SMRT has improved the journey experience for millions."

VINCENT TAN
Senior Vice President
Rail Operations & International Engagement
Joined SMRT in 1987

"I joined in 1982 as a technician for the Provisional Mass Rapid Transit Authority Study. Back then, I was given the opportunity to learn and perform various roles.

As a technician, I consolidated planning data from the Urban Redevelopment Authority, Housing and Development Board and Public Works Department so as to determine the potential locations of the MRT stations.

I recall conducting a headcount survey at Toa Payoh where I had to observe the traffic flow of people around the area. This helped to determine where to site the exits for the Toa Payoh MRT station."

CHUA LEE NA
Senior Planning Officer
Trains Planning & Support
Joined SMRT in 1987

DID YOU KNOW?

In the past, it took a team of six to manually count the number of passengers on board the NSEWL trains with one person assigned to each train car. The trainload data helped with the scheduling of trains in order to ensure a comfortable ride.

Today, one staff is all it takes as a trainload programme in the system can generate information on passenger loading. Additionally, train schedules and data from fare gates are analysed to determine the estimated number of passengers in each train.

Trainload was estimated by visually counting the number of passengers

OPENING OF THE RAIL NETWORK

8 July 1987 marks the delivery of the first MRT train at Bishan Depot
Photo Credit: Ministry of Information and the Arts Collection, courtesy of National Archives of Singapore

Hoong Mau Sui joined us as a Passenger Train Operator and was with the company from 1986 to 2011. He operated the first train that took Second Deputy Prime Minister Ong Teng Cheong from Toa Payoh to Yio Chu Kang MRT station and back.

"When train services began on 7 November 1987, I had the honour of being selected to be the train operator of the first revenue train. On that day, despite the many last minute changes and new instructions, I managed to remain calm and composed because I had rehearsed and was well prepared to operate the train carrying the VIP and passengers from Toa Payoh to Yio Chu Kang MRT station.

My friends joked that I became famous overnight when I appeared in the newspaper the following day for driving the first revenue train."

HOONG MAU SUI
Joined SMRT in 1987

DID YOU KNOW?

Female Train Captains have always been few and far between. We had just six female Train Captains compared to 288 male Train Captains. Today, we have seven female Train Captains and 532 male Train Captains.

A female Train Captain takes the driver's seat

Grace Leong is one of our pioneer female Train Captains. She has 23 years of experience in operating a train.

"As you would imagine, the responsibilities and job expectations are exactly the same, whether you're a male or female train captain. We work just as hard as our male colleagues! Doing a good job is all that matters, and all of us are treated as equals.

What has made it all worthwhile is the chance to improve constantly and learn new things. Over the years, we've had to upgrade our skills to keep up with the new train models."

GRACE LEONG KWAI CHAN
Senior Train Captain
NSEWL Train Operations
Joined SMRT in 1994

At the age of 19, Siti Fazliana Binte Mohamad joined SMRT. She was the youngest Train Captain. Curious about the mechanics of trains and how they work, she decided to take the career path less travelled by women.

"My friends were surprised when they first found out that I became a Train Captain. My family has always been my pillar of support and they are proud of what I am doing.

Initially it was awkward and took me some time to adapt to the environment. After interacting with my colleagues, I feel that they are very understanding and supportive. I go to them for advice whenever I face challenges at work – we have mutual respect for each other regardless of age and gender.

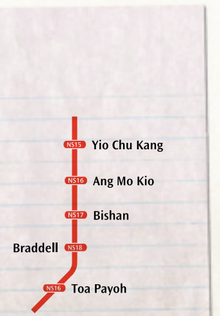
I strongly encourage the younger generation, especially females, who wish to pursue a career as a Train Captain to overcome their fears and strive towards their goal. My current role has equipped me with valuable work-related experiences and also helped boost my confidence level."

SITI FAZLIANA BINTE MOHAMAD
Train Captain
NSEWL Train Operations
Joined SMRT in 2013

COMPLETION OF THE NORTH-SOUTH AND EAST-WEST LINES

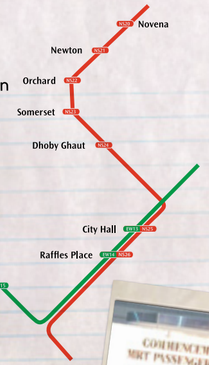
7 November 1987

Opening of the first section of the NSEWL from Yio Chu Kang to Toa Payoh by Second Deputy Prime Minister Ong Teng Cheong



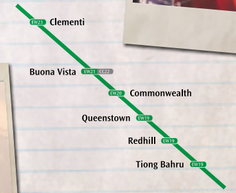
12 December 1987

Opening of the second section of the NSEWL from Novena to Outram Park by First Deputy Prime Minister and Defence Minister Goh Chok Tong



12 March 1988

The MRT system was officially launched by Prime Minister Lee Kuan Yew

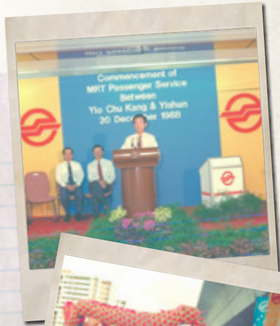


5 November 1988

Opening of the fourth section of the NSEWL from Jurong East to Lakeside by Communications and Information Minister Yeo Ning Hong

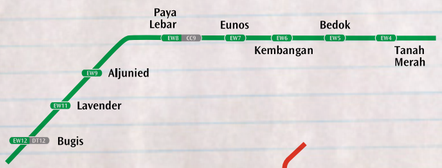
20 December 1988

Opening of the fifth section of the NSEWL from Yishun to Khatib by Communications and Information Minister Yeo Ning Hong



4 November 1989

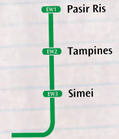
Opening of the sixth section of the NSEWL from Bugis to Tanah Merah by First Deputy Prime Minister and Defence Minister Goh Chok Tong



Opening of Marina Bay MRT station

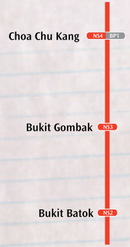
16 December 1989

Opening of the seventh section of the NSEWL from Simei to Pasir Ris by Minister of State for Communications Mah Bow Tan



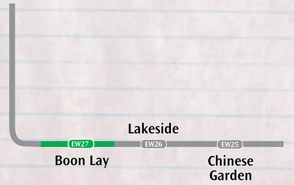
10 March 1990

Opening of the eighth section of the NSEWL from Bukit Batok to Choa Chu Kang by Communications and Information Minister Yeo Ning Hong



6 July 1990

Opening of Boon Lay MRT station by Boon Lay Member of Parliament Goh Chee Wee, marking the completion of the entire NSEWL, comprising 42 stations over a route length of 67 kilometres



WOODLANDS EXTENSION

In 1990, the Government put up a proposal to build a 16-kilometre Woodlands MRT line at a cost of $1.3 billion. It would connect Choa Chu Kang and Yishun MRT stations on the North-South Line and would comprise six MRT stations: Yew Tee, Kranji, Marsiling, Woodlands, Admiralty and Sembawang.

In February 1991, the Government went ahead with its plan to construct the Woodlands Extension. By 10 February 1996, the Extension was completed and opened by Prime Minister Goh Chok Tong.

The connection brought a much-awaited convenience to some 130,000 Singaporeans living in the north. It also supported the Urban Redevelopment Authority's plan to develop Woodlands into the northern hub of Singapore.

Commuters waiting for the arrival of the train at Woodlands MRT station

DID YOU KNOW?

DESIGN OF WOODLANDS EXTENSION STATIONS

Of the six stations on the Woodlands Extension, only Woodlands MRT station is designed with a barrel roof and stone tile finish. It takes advantage of its natural elevation, as the station sits on a hillock above Singapore's first underground bus interchange. The other stations along the Extension have a similar layout with rustic pitched roofs. You can differentiate the stations by their brick tile walls.

Woodlands MRT station is the only station on the Woodlands Extension with a barrel roof

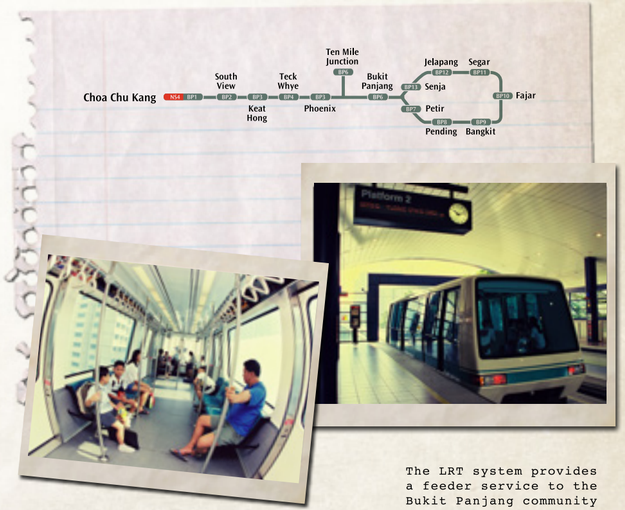
BUKIT PANJANG LIGHT RAIL TRANSIT

On 10 February 1996, Prime Minister Goh Chok Tong announced the building of the first fully automated LRT system at Bukit Panjang. The LRT system would operate as a feeder service to complement the existing MRT network.

Construction began in April 1996. On 6 November 1999, the Bukit Panjang LRT system was launched by Deputy Prime Minister Tony Tan. Comprising 14 stations along a 7.8-kilometre elevated track, the LRT provides an expedient link between Bukit Panjang New Town and Choa Chu Kang MRT station.

The LRT adopted state-of-the-art technology and design. The trains have misting windows to protect the privacy of residents living in apartments close to the tracks. The driver-less trains are controlled by a central system, while closed circuit television cameras were installed to ensure the safety and security of passengers.

SMRT officers designated to operate the LRT system were sent to Pittsburgh, United States of America, to be trained on the system. These pioneers, in turn, helped to coach future operations officers.



The LRT system provides a feeder service to the Bukit Panjang community

Shariffah Faizah Bte Syed Ibrahim started off her career at SMRT with our LRT system in 1999. After undergoing months of training with her teammates, they were deployed to the LRT stations, Operation Control Centre and Ten Mile Junction depot.

"We have to learn to multi-task. Although my first designation was Operations Officer, I was rotated to do Control Operations, Maintenance Operations and Roving Operations. So we were called COO (Control Operations Officer), MOO (Maintenance Operations Officer) and ROO (Roving Operations Officer).

The staff strength of the team was quite small. We were very close – like one family."

SHARIFFAH FAIZAH BTE SYED IBRAHIM
Manager
Passenger Service Department
Joined SMRT in 1999

Transforming

Travel Redefined

SMRT CORPORATION LTD

In July 2000, SMRT Corporation Ltd (SMRT) was incorporated and listed on the Singapore Exchange.

At that time, listing SMRT was seen as bringing wider responsibilities of good corporate governance and high standards of disclosure, coupled with the challenge of meeting the expectations of shareholders at large. While mindful of this, SMRT continued to provide safe and reliable transport service for commuters.

SMRT Corporation Ltd was listed on Singapore Exchange on 26 July 2000

THE TRANSITION TO THE NEW RAIL FINANCING FRAMEWORK

In 2016, SMRT Trains transitioned to the New Rail Financing Framework (NRFF).

SMRT welcomed the transition of our North-South, East-West and Circle Lines (MRT), and the Bukit Panjang Light Rail Transit (LRT) to the NRFF. The transition came after extensive consultations with the Land Transport Authority (LTA) since 2011. As part of the transition to the NRFF, LTA purchased the MRT and LRT operating assets held by SMRT.

The NRFF is a more sustainable model that will allow SMRT to continue fulfilling our role to deliver high levels of service and reliability for commuters.

As a result of this change, SMRT Trains now operates under an asset-light model, focusing on two main operational areas: providing quality service to commuters and maintaining the trains to ensure smooth operations.

A buzz of anticipation fills the air as Board members and senior management take their places before the huge crowd of shareholders at the Extraordinary General Meeting and Scheme Meeting on 29 September 2016.

THE PRIVATISATION OF SMRT CORPORATION LTD

2016 also saw the privatisation and delisting of SMRT Corporation Ltd from the Singapore Exchange.

SMRT received a proposal from Belford Investments, a wholly owned subsidiary of Temasek Holdings, to acquire all the issued ordinary shares in SMRT. The proposed privatisation provided SMRT with greater flexibility to focus on the primary role of delivering safe and quality rail service, without the short term pressures of being a listed company. It also allowed SMRT to refocus on our core mission as it retooled and reinforced our core skillsets in operations, engineering and maintenance, while removing all cost and distractions associated with SMRT's listing requirements.

The milestone resolution was passed at the Scheme Meeting when shareholders accepted Temasek Holdings' offer to buy over all their shares so that SMRT can be privatised and taken off the Singapore Exchange.

Shareholders at the Star Theatre for the Extraordinary General Meeting and Scheme Meeting

TIBS MERGER

Trans-Island Bus Services (TIBS) began operations in 1984 and over time became more than just a bus operator.

In May 1990, it formed a taxi company, TIBS Taxis Pte Ltd, which brought the world-famous London cabs to Singapore. In the same year, another subsidiary, TIBS Motors Pte Ltd, was set up to maintain the company's fleet of vehicles and function as a distributor and agent for selected motor vehicles.

In July 2001, Singapore was a step closer to a more integrated public transport system when plans for a merger between train operator, SMRT, and bus and taxi operator, TIBS Holdings, came into play. By the end of the year, with the merger, the public transport landscape in Singapore was transformed. We became Singapore's first truly multi-modal transport operator.

The move to establish TIBS as a wholly-owned subsidiary of SMRT brought together 2,987 TIBS employees and 3,115 SMRT employees. The expanded workforce of 6,102 was responsible for a combined fleet of 790 buses, 2,000 taxis, 106 MRT trains and 19 LRT train cars.

This set the stage for a new phase of ridership and revenue growth. Today, SMRT has a fleet of more than 1,400 buses, 3,000 taxis as well as 200 MRT trains and LRT train cars.

Road and train operations were transformed to give Singaporeans better connectivity and shorter door-to-door travel times, boosting the appeal of commuting by public transport. Instead of having to manage sometimes conflicting bus and train schedules, the public could now enjoy a better connected transport system.

TIBS Taxis hit Singapore roads on 2 May 1990

TIBS buses were distinguished by their yellow and orange design

TIBS, which was founded in 1982, became one of Singapore's leading bus operators by 2000

TIBS Motors was set up for internal fleet repair and maintenance

Kang Huey Ling joined TIBS in 1994 as a Traffic Planning Officer, planning bus routes for areas that TIBS was responsible for.

Safety & Service Excellence
Mastery
Responsibility & Respect
Teamwork
nurture
Integrity

SMRTNI

"

SMRT's relationship with TIBS dates back to 1994, when we first came together to form Bus-Plus Services, a joint venture that provided a bridge between public transport and taxi services. That was how we started our relationship.

Both SMRT and TIBS are in the public transport industry, which is about *Moving People, Enhancing Lives*. The merger has strengthened the bond and the shared commitment in our service to people. We very much see ourselves doing that better in a "new SMRT".

"

KANG HUEY LING
Principal
SMRT Institute
Joined SMRT in 1994

DID YOU KNOW?

REMEMBERING THE ORANGE BUSES

In a bid to reduce city congestion, the City Shuttle Service (CSS) was introduced in 1975. It established a Park and Ride scheme that encouraged drivers to park their vehicles outside the city and transfer to connecting bus routes. Initially, there were 11 CSS services jointly operated by NTUC Comfort and Singapore Shuttle Bus (SSB). When SSB was bought over by TIBS in 1987, and TIBS by SMRT in 2001, SMRT became the sole operator, by which time only five CSS routes remained. Service 608, the last CSS route, which plied between Bedok and Bukit Merah, was withdrawn from service in April 2007 because of insufficient demand.

Bendy Buses first appeared on Singapore roads in March 1996, when TIBS took delivery of its first Mercedes Benz Hispano Mk1. Flown in by cargo plane, the 18-metre vehicle was used to test the viability of articulated buses on the roads of the city-state. Following the successful trial, another 56 Bendy Buses were purchased, establishing the first fleet of articulated buses in Singapore.

The launch of CSS improved traffic conditions in the city

The first Bendy Bus arrived on a cargo plane

DID YOU KNOW?

TIBS AT YOUR FINGERTIPS

For children and bus enthusiasts, the TIBS memorabilia shop selling collectibles and miniature bus models was a tiny paradise at Yishun Interchange.

The shop ceased operations in 2004.

The TIBS memorabilia shop was popular with the young at heart

AN EXPANDING NETWORK

DOVER MRT STATION OPENS

With growing demand for connectivity and convenience, our train lines gradually expanded around the island.

By October 2001, Singapore Polytechnic students and residents of Dover finally got their MRT station. Opened by Transport Minister Yeo Cheow Tong, the Dover MRT station sits along the East-West Line between Buona Vista and Clementi MRT stations and was the first to be built on an operational track. During the construction stage, trains had to drive by the site at reduced speed. The station also became the first elevated station in Singapore with platforms on both sides of the train tracks, as others were built with an island platform.

Dover MRT station was the first to be built on an operational track

Dover MRT station's platforms are situated on both sides of the train tracks

Saat Bin Ibrahim, with 28 years of experience in station operations, is now the Station Manager for Tuas West Road MRT station. Prior to that, he was the Station Manager for Dover MRT station for 16 years.

“Although I am based at Dover MRT station, sometimes, I have to take on duties at neighbouring stations along the East-West Line.

Dover MRT station, which was built later, has different operating procedures for its facilities from the other neighbouring stations. I have to familiarise myself with two sets of operating systems, like the rescue procedure when a passenger is stuck in the lift.”

SAAT BIN IBRAHIM
Station Manager
NSEWL Station Operations
Joined SMRT in 1989

CHANGI AIRPORT LINE

Believe it or not, there was a time when Changi International Airport was not accessible by MRT. Until February 2002 — when Changi Airport MRT station opened — air travellers heading to the airport had to make do with the bus or taxi. The new ultra-modern MRT station brought the airport within a 26-minute ride from the city. Its impressive architecture enhances the reputation of the world-class airport it serves. Together, the Changi Airport MRT station and Expo MRT station form the Changi Airport Line.

The Changi Airport MRT station has enhanced connectivity between the city and the airport

DID YOU KNOW?

The Expo MRT station's futuristic style acts as a dramatic gateway to the Singapore Expo complex. A distinctive feature of the station is the large disc situated at the top of the glass elevator shaft, which some have likened to a flying saucer.

The Expo MRT station sports a futuristic look

The Expo MRT station concourse features a glass lift shaft

CIRCLE LINE

SMRT's train network further expanded in May 2009, when the Circle Line (CCL) first began operations. The first phase covered five stations between Marymount and Bartley. By 2011, with the commencement of services from Caldecott to HarbourFront, the 33-kilometre CCL was completed.

The fully automated service transformed Singapore's public transport landscape by linking all existing MRT lines to the city centre. The CCL has cut travel times dramatically by providing alternative routes to destinations without the need to travel to interchanges such as Raffles Place and City Hall.

Construction of Kim Chuan Depot, home to CCL operations

Kim Chuan Depot is the world's largest underground depot

The first CCL trains arrived in May 2006

Safety & Service Excellence
Mastery
Responsibility & Respect
Teamwork
nurture
Integrity

SMRTNI

"I joined SMRT in 2008 and had the opportunity to provide operational support at the early stages of the CCL development. I was so excited when I knew that I will be working on the fully automated and driverless system.

During the initial phase, I was working on the testing and commissioning of the train systems, which included conducting trial runs for train services.

Being able to witness and be involved in the development of CCL was truly a wonderful learning experience for me because everyday was filled with new challenges."

JASON SOO THIAM CHYE
Senior Station Manager
CCL Station Operations
Joined SMRT in 2008

FARE PAYMENT EVOLUTION

FROM COINS TO CONTACTLESS CARDS

Until the MRT came about, commuters paid cash fares to bus conductors when boarding a bus. This changed in 1987 when a fully automated fare collection system was implemented to handle the large volume of train passengers daily.

An integrated ticketing system was implemented in 1990 to provide a common fare payment system on both rail and bus services, which by then, had a total daily ridership of 2.6 million. The magnetic ticket, called the "farecard", became the first major stored-value facility to be introduced in Singapore. Transit Link Pte Ltd (TransitLink) was set up to collect and disburse fares received from passengers.

To enhance Singapore's transport ticketing system, LTA introduced contactless smart cards as the new ticket medium. Following pilot tests in 2000 and 2001, LTA rolled out the Enhanced Integrated Fare System, using contactless smart cards known as EZ-Link cards, to replace the magnetic cards. This was a significant milestone in the evolution of e-payments in public transport.

With the launch of the new EZ-Link card system, TransitLink was appointed to manage the sale, revaluation, replacement and refund of EZ-Link cards.

TransitLink, which was incorporated in November 1987, later became a subsidiary of LTA in April 2010.

Bus validators were a common sight on public buses in the 90s

Pilot tests for contactless smart cards were conducted in 2000 and 2001

The magnetic fare cards sparked interest among collectors with its wide range of designs

Limited Edition Fare Cards:
1997 SMRT's 10th Anniversary, A Decade on Track

Ang Siew Tee, who has been with SMRT since 1992, was part of the group that tested the new EZ-Link system before it was implemented nation-wide.

Safety & Service Excellence
Mastery
Responsibility & Respect
Teamwork
nurture
Integrity

SMRT

"

This picture was taken at the City Hall MRT station. It was during the trial period when farecards were going to be replaced by EZ-Link cards. MRT staff were amongst the first to try out the new system.

Over two decades with SMRT, I learnt that teamwork is very important. I often share my past experiences and knowledge with my colleagues as I always believe that we can accomplish more when we work as one.

"

ANG SIEW TEE
Senior Executive
Passenger Service Department
Joined SMRT in 1992

DID YOU KNOW?

THERE GOES THE MONEY TRAIN

In the days before stored value cards, the station staff had to handle large amounts of cash. To speed up the collection, an evening train would go around to collect the cash trolleys from each station. The Station Manager would have to push the heavy trolleys into this train in exchange for an empty one. The full trolleys would then be secured into parking berths built into the floor of the train carriage.

The money train would transfer the trolleys to the Cash Handling Centre at Bishan Depot. Machines were used to count the coins, while the notes had to be painstakingly counted by hand and verified by machine.

The money train on its daily rounds from the MRT stations to Bishan Depot

Cash being counted at the Cash Handling Centre at Bishan Depot

Tan Pang Chew, who joined in 1989, was with the Cash Handling Centre for eight years.

"It used to create a bit of a stir with passengers waiting on the platform when they saw a four-car train pulling into the station. Two security officers would stand guard by the doors to facilitate the transfer of the cash trolleys.

At the Bishan Cash Handling Centre, everyone had to work together as a team. Each coin had to be accounted for, and everyone could only leave when the accounts were balanced."

TAN PANG CHEW
Manager
NSEWL Train Operations
Joined SMRT in 1989

DID YOU KNOW?

THE VANISHING COIN MACHINES

Coin-changing machines were a common sight at bus interchanges in the days before stored value cards came along. They brought convenience to commuters who needed exact change for their bus fares. Hawkers and stall holders also loved these machines, because they could change their dollar notes into coins and avoid having to queue at the bank.

A commuter using the coin change machine at Woodlands bus interchange

Low Lee Chua has many years of experience in the bus industry, having joined Singapore Shuttle Bus in 1981.

Safety & Service Excellence
Mastery
Responsibility & Respect
Teamwork
nurture
Integrity

SMRTNI

"In the past, each bus service will have a driver and a conductor. The conductor will assist the bus driver to collect fares and issue bus tickets. Both are required to be present for bus operations. Manpower become an issue if either was unable to make it for their shift. The process was streamlined to a "one-man operation" system, where commuters paid their fares using the coin-collection box.

I am now involved in planning and scheduling duty roster for the Bus Captains. I am always fair and transparent when performing this task. This is to ensure that the Bus Captains have ample rest before their shifts commence and they are able to drive safely on the road."

LOW LEE CHUA
Senior Supervisor, Despatch
Bus Operations
Joined SMRT in 1987

TRACKING IMPROVEMENTS

We have been putting much effort into modernising, renewing and upgrading the NSEWL, the oldest, longest and most heavily utilised MRT lines in Singapore.

This takes place on a "live" MRT system seven days a week during non-revenue hours, as our trains continue to serve passengers for nearly 20 hours daily. Much of the work is away from the public eye in train depots, deep underground in train tunnels or during the early hours of the morning when trains have stopped running.

The transformation represents the first major upgrade for the lines since operations began in 1987. Progress on the complex set of engineering projects is made every day to serve you better.

Sleeper Replacement

Sleepers are rectangular pieces of timber or concrete that support the rails. All 188,000 timber sleepers that support the rails on the NSEWL have been replaced with more durable concrete sleepers for safer and smoother travel.

Power Rail Replacement

Replacing the power rail, which provides power to our trains to move, will reduce power rail-related faults, ensuring a more reliable network.

New Signalling System

Trains can be deployed as close as 100 seconds from each other during peak hours, down from the current 120 seconds, leading to shorter waiting times.

New Trains

More trains are being added to the network, leading to higher train frequency and less congestion on trains and platforms.

These multi-year, multi-project efforts will enable SMRT to serve our passengers with better and faster connections across the MRT network.

With an interest in train maintenance, Koh Heng Quan joined SMRT in 2015 as an Assistant Engineer and was involved in both the sleeper replacement and power rail replacement projects.

"I worked at night to replace worn out wooden sleepers that support train tracks with new concrete ones. I was also part of the power rail replacement team, working closely with the contractors to replace cables on track to support rail reliability.

These projects require the collaborative efforts from my teammates. As the work can only be done after the last train service at night, my colleagues and I ensure that we uphold our professionalism by performing our best even when no one is watching."

KOH HENG QUAN
Assistant Engineer
Systems & Technology
Joined SMRT in 2015

"We are making good progress installing a new signalling system on the NSEWL. I am involved in replacing the current system with the new communications-based train control system.

It is my responsibility to ensure that the contractors carry out the renewal works safely. With this transformation, commuters can look forward to a more seamless journey with shorter waiting times."

EDDY IRWAN BIN MOHD IBRAHIM
Technical Officer
Systems & Technology
Joined SMRT in 2012

MORE THAN JUST A STATION

As we expand our network across Singapore, our train stations, bus interchanges, trains, buses and taxis have also become highly visible platforms for thousands of retailers and organisations. The media and retail spaces afforded by this expanding network give us unparalleled reach to millions of commuters who use our transport services daily. With our expertise in advertising and retail management, it is not surprising that an increasing number of businesses are looking to our platforms to promote their brands.

Transit spaces in our network are transformed into retail platforms

CAPTURING EYEBALLS

We are a popular choice with advertisers looking for innovative marketing solutions. Today, SMRT Media is Singapore's largest Out-Of-Home (OOH) marketing and advertising network. Our digital innovations have enabled marketers to create attention-grabbing and inspiring campaigns. Marrying technology and creativity, we are constantly developing new channels and finding new ways to transform our assets into captivating and engaging media platforms.

The Media Hub Wall at Orchard is an ambient digital platform located at the Orchard MRT station linkway

TRAVEL AND SHOP

It may have the familiar cafes, restaurants, boutiques and even polished marble floors, but this is not an upmarket shopping mall. It is Raffles Place MRT station.

Train stations are no longer just places where you board a train. To meet the rising expectations of commuters, we transformed a few of our stations to offer lifestyle convenience with shopping and dining options. Raffles Place was the first of this new breed of Xchange stations when it opened in 2005. Overnight, Raffles Xchange became a destination in its own right.

With the success of the Raffles Xchange, SMRT Properties went on to develop Xchanges in other stations such as Choa Chu Kang, Esplanade, Woodlands and Ang Mo Kio, with more on the way. The Xchanges have made it convenient for commuters to find banks, cafes, fashion boutiques, beauty salons, healthcare providers, and convenience stores across more than 780 retail units in our travel network.

Raffles Xchange is the first MRT station to be redeveloped into a transit retail hub

SMRT INSTITUTE

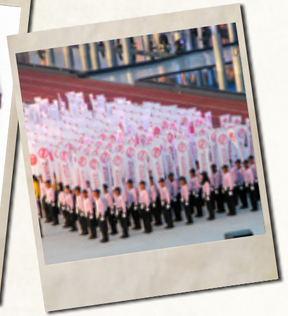
Over the years, we have accumulated a wealth of knowledge and experience in the area of public transportation. SMRT Institute (SMRTi) was formed in November 2009 to provide robust training for our employees as well as to share our expertise with a wider audience.

Our team of qualified training professionals at SMRTi possess significant operational and training experience as well as technical and soft skills. They have provided consultancy, training and educational courses to public transport professionals from around the world including Delhi Metro, Nanjing Metro, Taiwan Transit and Bangkok Metro.

Since then, SMRTi has teamed up with a number of academic institutions, including the Institute of Technical Education, polytechnics and the Singapore Institute of Technology, to develop future generations of technicians and engineers for the public transport industry in Singapore.

The SMRT Railway Task Trainer is the local rail industry's first virtual reality training system

Simulated scenarios generated by the Railway Task Trainer, enhance the learning experience



connecting

Our SMRT Family

ONE FAMILY

For many of us, working in SMRT is a lifelong career choice.

We get a great sense of community and camaraderie from the work we do here — serving the public and connecting people. The fact that nine out of 10 employees, according to the 2015 Towers Watson survey, are proud to work with SMRT, and that 86% of employees feel sustainably engaged at work, goes to show the immense satisfaction derived from our jobs and how close we have become as a team.

Over time, we have become good friends and even family.

Camaraderie amongst SMRT staff contributes to a positive work environment

ONE IDENTITY

The date, 10 May 2004, marks a momentous occasion for us. It marked a major transition for the organisation as more than 600 guests gathered at Ang Mo Kio Depot to witness the unveiling of SMRT's new corporate identity. All the various sub-brands and individual identities were unified under this new Group. Train, light rail, bus and taxi services were officially renamed SMRT Trains, SMRT Light Rail, SMRT Buses and SMRT Taxis.

In 2004, a brand integration launch held at Ang Mo Kio Depot saw our various business lines rebranded under the SMRT Group

A FAMILIAR PLACE

The heart of the company is SMRT's headquarters. Located at the junction of North Bridge Road and Stamford Road, it used to be the MRTC Head Office. Completed in 1991, our headquarters was carefully constructed around a building from the old Convent of the Holy Infant Jesus, now known as CHIJMES. This has allowed the charm and beauty of the old colonial architecture to be preserved till today.

Behind the modern façade of SMRT's headquarters, a section is connected and housed in today's CHIJMES

SMRT's headquarters at North Bridge Road was built in 1991

A FAMILIAR FACE

If you have visited SMRT's North Bridge Road headquarters, it is hard not to notice her warm, friendly smile. For more than 20 years, Janette Pang is often the first person to greet and welcome guests to SMRT.

"I have met many people over the years while doing this job, and a few have stood out in my mind.

There was a commuter who used to come to our headquarters to complain about a range of things. He often got angry and demanded to see our customer relations representative. After a few encounters, I could recognise him and started to address him personally. He was surprised that I could remember him.

Since then, if he comes by our headquarters, it is to say 'hello' because he is in the neighbourhood. He has since stopped complaining."

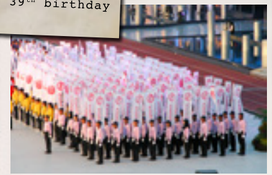
JANETTE PANG
Receptionist
Human Resources
Joined SMRT in 1995

NATIONAL DAY PARADE 2004

As one SMRT, 64 employees from across the organisation came together to show their love for our nation. SMRT's marching contingent for National Day Parade (NDP) 2004 went through intense training from the Singapore Armed Forces. They practised every week from March till August. All their efforts paid off. The entire nation cheered as our contingent marched smartly and in perfect synchronisation, celebrating Singapore's 39th birthday.

SMRT's 64-strong contingent spent months perfecting their foot drills for NDP 2004

SMRT celebrating the nation's 39th birthday



SMRT at Singapore's 39th birthday celebration

Salbiah Binte Abdul Majid has been with SMRT for 26 years and was part of the SMRT contingent for NDP 2004.

"The contingent was made up of representatives from across the company, and even included our taxi hirer and a Friend of SMRT*.

We started our first few training sessions at the army camp, then moved to the clubhouse, and finally, the National Stadium.

I volunteered because it was a great honour to be a part of the first SMRT marching contingent for NDP."

* A member of Friends of SMRT, a members only club for SMRT train and bus enthusiasts

SALBIAH BINTE ABDUL MAJID
Senior Administrative Officer
Commercial
Joined SMRT in 1991

KEEPING IT IN THE FAMILY

Do you know that there are families working in SMRT? Let's hear from some of them.

Rachel Chan joined SMRT in 2013 and works in the Trains Human Resources Department while her father, Chan Chee Kwong, joined in 1998 as a Bus Captain.

Did your father have any influence in your decision to join SMRT?

Rachel: When I was looking for a new job, it was actually my father who recommended SMRT to me. This was just shortly after the Bus Captains' strike. He has a lot of faith in the company.

Does working in the same company help to better understand each other's challenges?

R: Yes, to some extent. We do talk about work at home. It's always interesting to get different perspectives on the organisation that you work for. He likes to talk about his bus passengers and I tell him about trains.

How has your father inspired you?

R: He is incredibly dedicated to his job and seldom takes annual or medical leave. A while ago, he fell down and hurt his hand, but he insisted on a shorter medical leave period so that he could get back to work earlier.

CHAN CHEE KWONG
Chief Bus Captain
Bus Operations
Joined SMRT in 1998

RACHEL CHAN
Supervisor
Human Resources
Joined SMRT in 2013

Ibrahim has worked at SMRT for 21 years in the Rolling Stock Department and is based at Changi Depot. His son, Yusof, has been with the organisation for 17 years and works at the Integrated Electronic Workshop for signals and trackside equipment.

Did your father influence your decision to join SMRT?

Yusof: When I finished NS in 1999, I was looking around for a job and dad asked me if I wanted to work for SMRT. I was not that keen at first because working with my father, in the same company, could be too close for comfort. But he kept telling me that SMRT was a really good organisation with a strong work culture.

Ibrahim: I strongly encouraged Yusof to go for the interview. I know I work for a good company that takes good care of its people and I want my son to be a part of it too. I'm both happy and proud that he made it through the interviews.

Do your colleagues know that you are related?

Y: Actually, many of our colleagues do not know that we are father and son. The information is not relevant to our work. But it can be quite funny sometimes when our colleagues talk about one of us to the other, only to find out later that we are related. Now, everyone will know!

How do you find the learning culture at SMRT?

I: SMRT makes sure we must first have the right skills for the right job. We can also attend other interesting courses to further develop ourselves in areas we are interested in.

Y: I joined the company at an early age. SMRT has always had a very supportive learning culture that allowed me to complete my part-time studies while I was working. This is one aspect of the company that has kept both my father and me with SMRT for so long.

With your combined years of operational experience, tell us, how is it like working at SMRT?

Y: SMRT has supported me through the major milestones of my life. From the time I joined as a young man, to the completion of my studies and my marriage to a wonderful girl. I have grown with the company, and the company has grown with me. I am proud to be part of SMRT.

I: SMRT is not my first job but if I can help it, it will be my last. I plan to work with SMRT all the way until 65. It's important to keep myself active and fit so that I can continue to enjoy my work and the people here.

IBRAHIM BIN ABDUL RAHMAN
Technical Officer
Systems & Technology
Joined SMRT in 1996

YUSOF BIN IBRAHIM
Senior Engineer
Systems & Technology
Joined SMRT in 2000

LOVE IS IN THE AIR

Romance blossoms for some of our colleagues here at SMRT.

Safety & Service Excellence
Mastery
Responsibility & Respect
Teamwork
nurture
Integrity
SMRTNI

Baharudin and Zulaila tied the knot in 2005 and celebrated their twelfth wedding anniversary this year.

How did you first meet? Was it love at first sight?

Baharudin: Our eyes met for the first time at the end of 2003, when Laila was assigned to cover duties at Raffles Place MRT station. I was the Customer Service Officer at the station at that time. I thought she was the cutest girl I had ever seen.

Zulaila: I noticed Baha from the Passenger Service Centre while he was on concourse duty.

B: Then, somehow, we started to talk one day. We discussed our work and shared our problems, and from there, we went on dates, held hands, and before we knew it, it has been ten years already!

How has the transition from sweethearts to couple changed your working life?

B: We haven't worked in the same station since we got married. But we found other ways to support each other at work, like participating in the same events or just cheering the other person on.

Z: We also look for projects that we can do together. For example, we starred in a safety video and entered it for a safety competition.

How rewarding has it been to work at SMRT?

B: Both of us are very happy to work in SMRT. I have been here since 1994 while Laila joined in 2002. It is our second home. Every day, we encounter different people and situations. There's always something new to look forward to.

Z: Baha and I agree that the best part about our jobs is reading the appreciation letters from commuters. It's very satisfying to know that our efforts are appreciated. It makes us want to do more.

BAHARUDIN BIN JOHAN
Station Manager
NSEWL Station Operations
Joined SMRT in 1994

ZULAILA BINTE DOLLAH
Senior Assistant Station Manager
NSEWL Station Operations
Joined SMRT in 2002

In 2011, Shi Ai Ling started her new job as a Bus Captain. Interestingly, the lucky lady found more than just a career at SMRT. She also found a life partner in Ng Cheong Teck, whom she married in September 2012.

Safety & Service Excellence
Mastery
Responsibility & Respect
Teamwork
nurture
Integrity
SMRTNI

How did it all begin? Who made the first move?

Ai Ling: After my Bus Captain training, I was deployed to Yishun Interchange. Cheong Teck, who joined the company in 2002, was a mentor to the new and junior Bus Captains at Yishun. He knows all about the service routes here.

Cheong Teck: Well, I wasn't Ai Ling's mentor, but I noticed that she didn't seem as confident. So I gave her more advice about the company's rules and safety regulations, and shared my own driving tips and experience with her. We were always talking about her driving — and I guess that's how the romance blossomed. One day after work, I plucked up the courage to ask her out for a meal at Northpoint.

What was it like working together? How did you find time for courtship?

AL: I drive bus service 811. Sometimes, he takes my bus service home and he would talk to me during the journey. Initially, this made me a little uncomfortable, as I didn't like being "observed" while driving.

CT: I suppose being able to see each other frequently helped move things to a new level. Once, we found ourselves working the same shift, and we decided to watch a movie together after knocking off. Things have worked out quite nicely!

Do you end up talking about work at home? How do you both keep the romance alive?

CT: Being in the same company means that we're able to understand each other's work environment and support one another better. We've gotten used to working around each other's schedule.

AL: Both Cheong Teck and I enjoy exploring places together, and we do this whenever our timings permit. It's not always easy with our shift work, but we try to make time for each other!

NG CHEONG TECK
Senior Bus Captain
Bus Operations
Joined SMRT in 2002

SHI AI LING
Bus Captain
Bus Operations
Joined SMRT in 2011

ESPRIT DE CORPS

There is more to a uniform than just corporate identity. It invokes a sense of belonging and teamwork for those wearing it. Take a look at how our uniforms have evolved over the years!

OPERATIONS

TRAINS

MAINTENANCE

1980

1990

2000

OPERATIONS

ROADS

MAINTENANCE

1980

1990

2000

TRAINS + ROADS

OPERATIONS

MAINTENANCE

2000

2010

PRESENT

REMEMBER THE MASCOTS?

Over the years, SMRT created a series of mascots to champion and promote different causes. All have since retired. Have a look and see how many of them you can remember.

NAME:
Captain SMRT

CREATED IN:
2005

Perhaps our most well-known mascot, Captain SMRT promoted SMRT's Courtesy and Safety Programme.

NAME:
SMRT Shield

CREATED IN:
2008

This knight with a large red shield championed workplace health and safety.

NAME:
Greenie

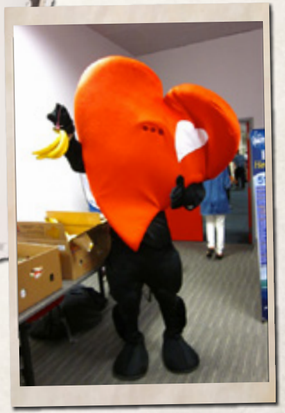
CREATED IN:
2009

Greenie was the face of our Go Green with SMRT campaign and represented SMRT's commitment to environmental sustainability.

NAME:
FIFI

CREATED IN:
2010

FiFi was always present at Fit and Fun Club events to greet participants and promote healthy living.



As Captain SMRT (pronounced "Smart"), Devanesan S/O Anthonysamy cannot be missed in his bright red bodysuit and silver boots. Between 2007 and 2010, Devan was part of a movement to encourage courteous acts and safe behaviour among SMRT commuters. In fact, the enthusiastic superhero, who joined SMRT in 2002, was frequently spotted on our buses, trains, and at stations and interchanges.

How did you become a superhero?

There was an email going around in 2007 asking for volunteers for the Courtesy and Safety Campaign. I have always wanted to make a difference in people's lives and the work looked interesting, so I signed up for it. Captain SMRT has the superpower to initiate positive change in anyone he comes in contact with.

Why did you volunteer for Captain SMRT?

There are two ways to live your life: you either tolerate the way things are or take the initiative to change it. I believe by stepping forward to be Captain SMRT, I have helped promote safety and courtesy in the community.

What exactly did you have to do as Captain SMRT?

The first event I attended as Captain SMRT was at Ngee Ann City early one Sunday morning. I had to flag off, greet and welcome participants at the SMRT Challenge, an event on safety and courtesy, similar to the Amazing Race. I've also been on many train journeys educating the public on good train etiquette like giving up seats to those who need them.

How did most people react to someone wearing a red bodysuit, mask and silver boots?

They were always curious but shy at first. But once I warmed things up, everyone — even those with a bad mood — would become friendly and chatty. You can find Captain SMRT in countless family photos.

DEVANESAN S/O ANTHONYSAMY
Technical Officer
Systems & Technology
Joined SMRT in 2002

STRETCHING OUR CAPABILITY

BUILDING OUR RAIL ENGINEERING EXPERTISE

We invest heavily in developing our people, and in making continuous improvements to better serve our commuters.

In May 2015, we launched the SMRT Train Engineer Professionalisation programme to develop our new engineer hires as well as to upgrade and energise incumbent engineers. We also strengthened ground maintenance leadership with a new Engineering Maintenance Manager Career Scheme.

On the external front, SMRT plays a leading role in collaborating with the authorities and other industry partners to promote the rail engineering industry and professionalise our rail engineers.

Together with Nanyang Technological University, Singapore (NTU Singapore), we launched a $60 million research laboratory in May 2016 to develop technology-based solutions for a more resilient and reliable urban rail system. Combining our rail operations and engineering capabilities with NTU's research strengths in engineering, the Corporate Laboratory focuses on two research tracks that aim at eliminating problems before they occur and enhancing reliability of existing rail assets. It also provides an opportunity to nurture our rail engineers, instill greater engineering passion in them and allow them to acquire new knowledge and skills.

Our collaboration with the Institution of Engineers, Singapore has led to the successful launch of the Chartered Engineer programme for railway and transportation professionals. This accreditation recognises the professional skills and values attained by our railway engineers.

We also announced on 21 October 2016, a partnership with the University of Birmingham, one of the United Kingdom's top universities for railway research and education, to offer a postgraduate certificate in Urban Railway Engineering. The three-year course, a global first between a University and a rail operator, will contribute to accelerating the development of our rapidly growing railway engineering workforce.

The seven SMRT engineers to be accredited as Singapore's first Chartered Engineers in Railway and Transportation Engineering

The postgraduate course in Urban Railway Engineering provides participants with perspectives from an institute of higher learning for railway research and education as well as real-world operator experience

Josephine Quah started her career with SMRT as an Assistant Engineer in 2001 upon graduating from Singapore Polytechnic. 16 years and two children later, she leads a team of technical staff in maintenance operations to drive rail reliability and hopes to be an inspiration to female engineers.

"

How did you achieve excellence in both your career and family life?

The SMRT STEP programme that I was part of, has equipped me with management and leadership skills to address the challenges I face at work. It has also trained me to empower and nurture the younger generation of engineers. Being able to look at things from a wider perspective has helped me perform my best at work and allow me to achieve work-life balance.

How have you grown over the 16 years at SMRT?

I have not only grown through the experiences and knowledge I have acquired in my years of service, but also through the values I hold dear — integrity and respect. Doing the right thing without questioning ourselves and recognising the value in others will in turn earn trust and support from the people we work with. Being true to oneself and showing respect to others will help us grow as a person.

"

JOSEPHINE QUAH
Engineering Maintenance Manager
Power, Engineering & Plans
Joined SMRT in 2000

ENGAGING OUR COMMUNITY

Our vision, *Moving People, Enhancing Lives*, is at the heart of everything we do at SMRT. It calls on us to do more as a public transport operator; to be an active corporate citizen, working to improve the lives of Singaporeans, especially those amongst us with disabilities.

Corporate Social Responsibility has always been important to SMRT. We see it as a meaningful part of our lives which defines who we are and what we do.

Our active participation in community projects has made us all proud to be part of the SMRT family.

Reaching out to the community through arts & education

ENABLING MOBILITY

The SMRT Gift of Mobility is a community assistance programme initiated in 2008. Working closely with Volunteer Welfare Organisations and Community Development Councils (CDCs), the programme provides financial assistance to low-income residents with mobility needs to enable them to use taxi services to seek medical treatment or employment, until more permanent transport arrangements can be made available to them.

The Central Singapore CDC has been one of our programme partners since 2011. They match dollar-for-dollar the amount that SMRT donates to the CDC. To date, we have 920 beneficiaries from the Central Singapore CDC receiving subsidies to defray taxi costs.

The SMRT All-in-one SPACE taxi – Singapore's first large-capacity taxi with a hydraulic ramp, was launched in 2008

In more recent years, here are some programmes and initiatives we participated in or introduced.

Since 2008, SMRT has contributed more than $1.3 million and enabled more than 8,000 beneficiaries, including children with special needs, to travel around Singapore more easily. We hope to extend the programme to more people with restricted mobility so they too can achieve greater independence.

Apart from our anchor Gift of Mobility programme, we have recently supported and launched a series of projects to affirm our commitment in being a mobility enabler.

2015:
June

SMRT supported Wheels@Ubin, a community project which brought 100 wheelchair users on a tour to Pulau Ubin to celebrate SG50. This project ensures Pulau Ubin's charms are not closed off to those who are wheelchair-bound. It also promotes an inclusive environment that is mobile-friendly to all.

A hundred taxis were provided to ferry the participants to the jetty from their respective homes. In addition, 30 staff volunteers accompanied the beneficiaries on the visit.

2015:
August

The first inclusive playground located at Bishan-Ang Mo Kio Park was officially opened by the Minister for Social and Family Development, Mr Tan Chuan-Jin. The launch saw 27 taxi partners ferrying our beneficiaries to the playground, which caters to children with disabilities. The inclusive playground was made possible by the Care & Share Movement, with SMRT as one of the key donors. Children with disabilities can play and enjoy themselves on a wheelchair-friendly merry-go-round, a wheelchair swing as well as a slide that provides additional tactile stimulation.

2016:
January

We achieved a major milestone with our donation of life-size public transportation models to the JurongHealth Mobility Park. Situated within the integrated healthcare hub of Ng Teng Fong General Hospital and Jurong Community Hospital (JCH), the Mobility Park is purpose-built next to the JCH's indoor rehabilitative facility. The Mobility Park helps patients in their recovery and reintegration back into the community.

Photo Credit: Jurong Health Services Pte. Ltd.

2016:
April

The Home Nursing Foundation announced their tie-up with SMRT as their principal mobility partner. We sponsored a custom-fitted 14-seater passenger mini bus, equipped with hydraulic lifts and dedicated a wheelchair space, which provides point-to-point transportation for healthcare workers and beneficiaries.

2016:
May

SMRT celebrated the opening of the second Inclusive Playground at Ghim Moh. The purpose-built recreational facility is designed to break down the barriers of play between children with and without special needs, allowing them to play together with their friends and families, and encouraging development of their social and physical skills.

2016:
August

Wheelchair users can now seamlessly enjoy Gardens by the Bay. Connecting visitors between Bayfront MRT Station and the Gardens' key attractions are eight 22-seater wheelchair-friendly passenger shuttles. The new shuttle service enables motorised wheelchair users to board the cruisers without needing to get out of their wheelchairs.

In her 60s and living in a one-room HDB rental flat in Redhill, Madam H* suffers from multiple medical issues, including fainting spells, kidney failure and diabetes. Her medical condition also causes her legs and feet to swell frequently, and restricts her mobility.

Madam H's husband works as a hawker's assistant and earns around $800 each month. Most of his income goes towards her medical bills, and they have barely enough to get by. Because her husband has to work, Madam H usually goes for her medical checks alone.

The SMRT Gift of Mobility programme has not only helped to defray Madam H's transport costs, it also gives her husband greater peace of mind knowing that she will arrive at her medical appointments safely and on time.

* Name has been changed to protect the individual's privacy

"My wife is now able to attend her medical appointments regularly and safely because of the financial assistance from the SMRT Gift of Mobility programme. It also takes some pressure off us because we do not have to worry so much about rising transportation costs with our limited earnings."

HUSBAND OF MADAM H
Madam H is a beneficiary of SMRT's Gift of Mobility programme

"I helped out at the launch of the Inclusive Playground. This is not just another playground in an estate, but one that benefits those with special needs.

I involve myself at such events as I find it meaningful to give back to society. I want to provide help within my means. Apart from that, it also serves as a platform for me to meet and interact with many other colleagues who share similar interests."

SANDY CHAN AI KHIM
Manager
Automotive Services
Joined SMRT in 2011

DID YOU KNOW?

ENHANCING LIVES

In November 2015, we introduced our *Enhancing Lives* logo to represent SMRT's affirmation in wanting to pay it forward to the community. SMRT's Corporate Social Responsibility (CSR) strategy ensures greater alignment between our programmes and vision of *Moving People, Enhancing Lives.*

The logo portrays a heart and a pair of supporting hands. The heart is synonymous with a caring community, while the hands embody SMRT's three CSR pillars. The left hand represents our commitment to encouraging environmental sustainability. The right hand symbolises our efforts in enabling mobility and empowering the community through arts & education.

The strategic placement of the SMRT roundel shows that SMRT is at the heart of our community.

The *Enhancing Lives* logo encapsulates our CSR commitments

GIVING BACK TO THE COMMUNITY

A 30-member strong "SMRT Volunteers" contingent was formed in 2002. Through the Corporate Volunteer Programme, this group participates in community activities coordinated by social service organisations. Over the years, staff volunteers reached out to the beneficiaries of the various social service organisations that SMRT adopted. They include the AWWA, Bizlink Centre, Cerebral Palsy Alliance Singapore, Geylang East Home for the Aged (GEHA), Handicaps Welfare Association, Muscular Dystrophy Association Singapore and SPD. We hope to promote and emphasise the spirit of inclusiveness amongst our people by creating opportunities for them to give back to the community.

Staff volunteers bonding with beneficiaries from AWWA

Ng Pheck Hoon joined SMRT as an Assistant Engineer in 1996. Armed with a passion for volunteering, she devotes her time to social causes.

"Since 2005, I have been volunteering every month at GEHA. My role includes supporting food ration distribution to the beneficiaries. I also spend time at AWWA preparing meals for the elderly.

I enjoy volunteering as I get to meet like-minded volunteers from all walks of life and help those in need. I strongly believe in serving with no expectation of receiving anything in return. My heart is full just by hearing a simple word of appreciation from the beneficiaries and seeing the smiles on their faces."

NG PHECK HOON
Senior Assistant Engineer
Systems & Technology
Joined SMRT in 1996

DID YOU KNOW?

REMEMBERING THOSE IN THEIR GOLDEN YEARS

From 2006 to 2013, the Silver Tribute Fund (STF) was one of SMRT's biggest philanthropy initiatives, raising more than $1 million.

It was our way of showing appreciation to the pioneer generation for their contributions to society. The STF aimed to raise money for forgotten, abandoned and lonely seniors who were in need of care and attention. The money raised was channelled to beneficiaries to fund programmes that helped the elderly experience again the joy of living, and lead meaningful and dignified lives.

The STF raised funds for seniors in need of assistance

REACHING OUT THROUGH ARTS & EDUCATION

SMRT is passionate about bringing the arts to the community and supporting aspiring local artists.

From 2009 to 2013, we were part of the Esplanade's initiative, A Date with Friends, which was held in conjunction with Active Ageing Week. The event celebrated the contributions of senior citizens in our society through songs and performances by artistes from yesteryear. Additionally, we have worked with the Esplanade to bring art workshops to our selected beneficiaries.

Collaborating with Pathlight School, 50 pieces of transport-themed artwork were produced for display in our transport network. Pathlight is Singapore's first autism-focused school to offer mainstream academics and life skills to students with autism. The collaboration demonstrated our support for inclusiveness and celebrated the talent of these students.

Together with the Esplanade, we organised a tie-and-dye workshop for our beneficiaries

Transport-themed artwork by Pathlight students and alumni were displayed across our train network

Over the years, SMRT has launched a number of public education programmes, including the SMRT Courtesy and Safety programme, Learning Journey programme and the SMRT Community Emergency Preparedness programme. They highlight the safety and security features of our network and show how individuals can play a part in ensuring pleasant journeys for all commuters. Elements of each public education initiative have since been incorporated into the Learning Journey programme.

In 2014, a community outreach programme that partners local schools to encourage gracious commuting behaviour, called Adopt-a-Station/Adopt-an-Interchange, was introduced. Thirty schools have participated and over 1,300 students have been made Station Ambassadors through Adopt-a-Station since its inception.

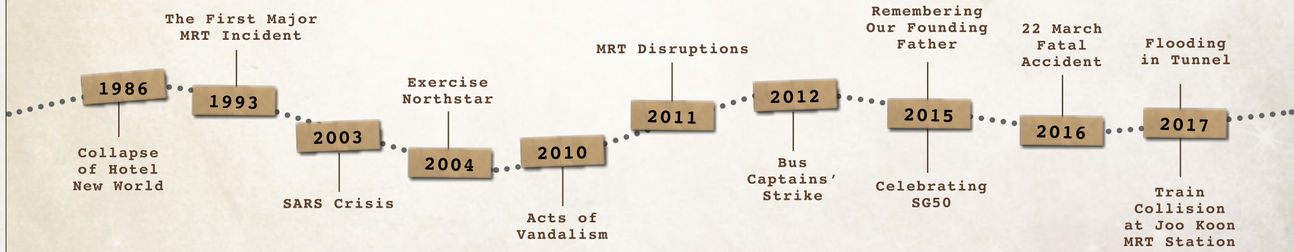
Young participants visiting a maintenance workshop under the Learning Journey Programme

growing

Rising to the Challenge

EVENTS THAT SHAPED US

Over the years, as an organisation, we have been a part of many national milestones. We have also been the talk of the nation. From our experiences, we have grown stronger and risen to every challenge.



1986: COLLAPSE OF HOTEL NEW WORLD

It was almost noon on Saturday, 15 March 1986. As workers at the Lian Yak Building were preparing to knock off for the weekend, there was a shudder and the entire building caved in. There was no time for anyone to react. The incident, which is often referred to as the "Collapse of Hotel New World" after the building's anchor tenant, became one of the worst civil disasters in Singapore history.

Five hundred officers from the Singapore Civil Defence Force (SCDF), Fire Service, Singapore Armed Forces and Public Utilities Board were involved in the search-and-rescue operations. After clearing the top layer of the rubble with heavy cranes and rescuing nine survivors on the first day, rescue efforts were hampered by the lack of proper equipment and the limited experience of the rescue workers in this unfamiliar situation. Heavy concrete could collapse and threaten to bury the firemen who tried to tunnel into the rubble to reach the other survivors. A safe passage into the ruins was needed urgently.

The rescue team turned to the tunnelling experts in MRTC for advice. The MRTC team, comprising Director Lim Leong Geok, MRT Project Director Terry Hulme and MRT engineers Russell Black and Dave Stewart, promptly arrived on-site and studied the situation. They quickly decided on the cut-and-lift method that would prevent the precarious wreck from collapsing under its own weight. Their accurate assessment and recommendation allowed the rescuers to approach the rubble safely and reduced further risk of the concrete collapsing on the trapped victims.

With the correct extraction method identified, the rescue operations gained momentum once again and eight more lives were saved. By mid-day of 19 March, after 83 intense hours, rescue operations were finally called off when it became evident that there would be no more survivors.

In April that year, a special investiture ceremony was held to honour the rescue team, among them the MRTC team.

Rescue operations involved MRT engineers who had tunnelling expertise

1993: THE FIRST MAJOR MRT INCIDENT

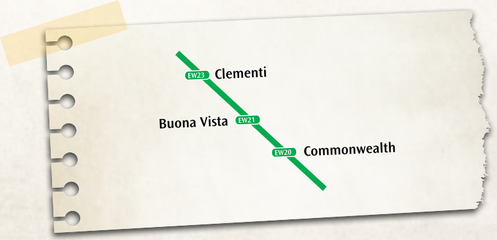
The MRT encountered its first major incident on the morning of 5 August 1993 when two trains collided at Clementi MRT station.

Due to a technical fault, an east-bound train from Jurong was held up at 7.50am at the Clementi MRT station. The next train arrived on schedule. Although the driver had applied the brake, the train was unable to stop completely before it hit the stationary train in the station. 156 commuters were injured.

An independent inquiry committee was set up immediately to investigate the accident. Operations at Clementi, Buona Vista and Commonwealth MRT stations had to stop for the engineers to inspect the tracks, signals, power and other installations.

It turned out that a locomotive carrying out maintenance work earlier that morning had a broken rubber ring, which leaked oil onto the tracks from Buona Vista MRT station to Ulu Pandan depot. Although the incident was reported, the cleaning crew tasked to clear up the oil leak was delayed as the station masters were changing shift.

The unfortunate incident could have been avoided if the oil leak had been dealt with promptly. This incident led to the tightening of procedures and the establishment of a stronger safety culture in SMRT.



After the incident, to ensure the safety of the system, our engineers inspected the tracks at Clementi, Buona Vista and Commonwealth MRT stations to certify that service could resume again

2003: SARS CRISIS

Many of us would remember the Severe Acute Respiratory Syndrome (SARS) epidemic in 2003 that gripped the world as there was no known cure or vaccine available for the new viral disease.

Throughout the crisis, we instituted a number of unprecedented measures to protect SMRT staff while ensuring uninterrupted operations and service to the public. Among the initiatives taken were daily temperature checks for our staff and distribution of vitamin C tablets to the frontline team. Buses, trains and stations were also cleaned and disinfected daily and contingency teams were established for critical functions.

Together, we responded swiftly and put in place practical measures that reassured commuters of SMRT's commitment to safe public transport.

Operations and service were unaffected during the SARS period

2004: EXERCISE NORTHSTAR

First introduced in 1997, Exercise Northstar tests the readiness and coordination between national agencies in responding to major emergencies in Singapore.

The first time the exercise involved SMRT was on 11 January 2004. At Raffles Place MRT station, our readiness to manage emergency situations was put to the test with a chemical attack scenario. The drill involved over 900 participants from 13 agencies.

Our frontline staff participated in the exercise and we tested our crisis management procedures against various scenarios, such as switching off the ventilation and central air-conditioning systems to reduce the spread of "poisonous vapours". Participants, role-playing as casualties, were swiftly evacuated and decontaminated by rescue workers, while special task force searched for and successfully neutralised the "nerve agent source".

The realistic exercise gave our frontline employees a good opportunity to assess our readiness to respond to emergencies. We were able to enhance the procedures for inter-agency cooperation, and gain useful insights to the response and resources required during an emergency.

Exercise Northstar has also been conducted in stations such as Dhoby Ghaut and Toa Payoh MRT stations.

With the growing threat of terrorism in the region, the security of the public transport system has become an important public concern. Joint exercises with emergency services help validate our security procedures, sustain vigilance and reassure the public that we are ready to deal with emergencies.

Most recently, Exercise Northstar was conducted again, this time at the Kallang Wave Mall and Stadium MRT station to rehearse the contingency plans in preparation of the SEA (Southeast Asian) Games 2015.

Our frontline staff participating in the national-level emergency preparedness exercise

2010: ACTS OF VANDALISM

Since 2010, there have been four incidents of vandalism at SMRT depots.

Each incident revealed security vulnerabilities which were quickly addressed. Since then, patrols have been intensified and fence intrusion detection systems, extra perimeter lighting and closed-circuit television systems were progressively installed in and around the depots. Security operations were also consolidated under a single provider to enhance depot security.

While the defacement of the trains meant that they had to be removed from service for up to a week to be cleaned, we were more concerned with the illegal entry into our depots as such breaches could compromise commuter safety and security. We have been working closely with the security agencies on effective ways to determine, deter, defend and defuse potential threats.

2011: MRT DISRUPTIONS

On the evening of 15 December 2011, four trains along the North-South Line stalled, leaving the peak hour crowd and Christmas shoppers without train services. Services from Marina Bay to Braddell MRT stations were affected.

Two days later, train service was disrupted again on the same line. This time, five trains stalled, each at City Hall, Dhoby Ghaut, Ang Mo Kio, Bishan and just before Somerset MRT stations.

A formal investigation was conducted and found that a sagging Power Rail, which supplies electrical current to trains, had damaged the current collector shoes of passing trains, causing them to stall. Over 200,000 commuters were directly affected by the two incidents which lasted approximately 6 hours each. On both occasions, our staff worked hard round the clock to rectify the problem.

The Government commissioned a Committee of Inquiry to investigate the train disruptions. Separately, SMRT formed an internal investigation team to assess learning points and identify areas for improvement. Concurrently, we also comprehensively reviewed our service reliability and incident response capabilities.

Faced with an ageing system, we stepped up our maintenance efforts. Improvements were also made to the real-time monitoring of train and track conditions, operational responses to incidents and service recovery efforts to mitigate the impact of disruptions.

We also recognised the need to adapt to our commuters' changing needs for real-time updates and information. On 17 December 2011, real-time travel updates were made available through the SMRT_Singapore Twitter account. This paved the way for SMRT to engage on social media. Our communication arsenal included the creation of SMRT Facebook page on 29 April 2013. We also introduced other touchpoints within our network to provide our commuters with information on service delays.

The service disruptions in December 2011 were amongst the toughest challenges confronting the MRT network in its 24-year history. For us, it was the start of an important process to restore public confidence and trust, set against the backdrop of rising expectations, growing ridership and ageing infrastructure. This challenge severely tested SMRT, but it also brought out the best in us. It has strengthened our solidarity, and has exemplified the dedication and sense of service that have become the hallmarks of SMRT.

We began tweeting real-time information on 17 December 2011

2012: BUS CAPTAINS' STRIKE

On 26 November 2012, Singapore woke up to a morning with noticeably fewer buses on the roads. 171 bus captains from SMRT had not turned up for work. Several had called in sick while others simply could not be reached. SMRT realised it was dealing with an organised strike by Bus Captains from China in protest of their lower wages. This was the first strike in SMRT's history.

The Bus Captains' strike compromised labour relations and tarnished the reputation of SMRT. SMRT, LTA and the Ministry of Manpower stepped in immediately to mediate with the Bus Captains. The following day, 83 of them returned to work while the others continued with the protest. The strike ended on 28 November. Four Bus Captains were arrested for instigating the strike, and the rest of the Bus Captains went back to work.

Bus services continued to run smoothly during the two-day strike after mobilising our resources. 45 bus drivers from SBS Transit and private operators were also on standby to support the bus operations. A 24-hour hotline and an email helpdesk were implemented to provide an open channel for feedback. The living and working conditions of all the Bus Captains were also enhanced. Since April 2013, all Bus Captains have been moved to a common career progression plan, salary structure and incentive programme based on performance and productivity.

CEO visiting the Bus Captains at their dormitory in Serangoon

Our efforts were recognised at the May Day 2015 Awards Ceremony on 29 April 2015 when we clinched the prestigious Plaque of Commendation (Gold) Award. The award from the national labour movement was made through a nomination by the National Transport Workers' Union (NTWU). This move acknowledges our robust partnership between the union, our management as well as our staff, and validates our contributions towards building an engaged and progressive workforce.

We continue to build a strong partnership with the union. The tripartite arrangement between SMRT, NTWU and the government allows all parties to find points of commonality. This does not remove differences, but enables us to focus on the positive common space where we can explore and grow.

CEO conducting a townhall session to reach out to our Bus Captains

2015: REMEMBERING OUR FOUNDING FATHER

23 March 2015 marked the passing of Singapore's first Prime Minister, Mr Lee Kuan Yew. The nation rallied together to mourn his loss. Hundreds of thousands of mourners queued patiently to pay their last respects to our Founding Father at Parliament House.

To ensure that people could get home in the wee hours, trains and selected bus services were extended past the usual operating hours. It was a mammoth feat made possible by more than 400 staff who worked hard to ensure that transport services would be available round the clock on 25 and 27 March, and for additional hours on other nights of the National Week of Mourning. Feeder buses too, worked overtime to connect commuters between the train stations and the residential areas.

From the city to the heartlands, Train and Bus Captains, Timekeepers and Station Managers worked tirelessly to keep the services on schedule. This was SMRT's tribute to Mr Lee Kuan Yew.

On the day of the state funeral on 29 March, buses were held back at the interchanges and all trains pulled to a stop at the stations at exactly 4.30pm for commuters and our staff to observe a minute of silence together with the nation.

Our staff from SMRT Trains and Buses working through the night so that people could pay their respects to Mr Lee Kuan Yew

"It is worth restating the rationale behind our decision to build the MRT. We have only a limited amount of land on which to house our people, build factories, hospitals, roads and schools, and train the SAF*. Therefore, we decided to give top priority to investments in public transport, and to put private transport in second place.

We do not have the land to allow an unlimited growth of private cars. This means that we must put the MRT to optimal use, and the bus services must dovetail and complement the MRT. We must also keep improving the bus and taxi services and keep the growth of cars to moderate levels."

* Singapore Armed Forces

MR LEE KUAN YEW
Official Opening of the MRT
12 March 1988

Mr Lee Kuan Yew, Singapore's first Prime Minister, officially launching the MRT system on 12 March 1988

2015: CELEBRATING SG50

On 9 August 2015, we joined in the celebrations for Singapore's 50th birthday by providing free travel on trains and buses. This encouraged the public to attend National Day celebrations island-wide, without worrying about parking or traffic congestion.

More than 500 staff volunteers came together with SMRT management to greet commuters at 10 MRT stations and five bus interchanges where we gave away 200,000 limited edition SG50 buttons and 50,000 SG50 EZ-Link card stickers to passengers. Staff volunteers also assisted with crowd control.

A record 4.5 million passenger trips were made in our network that day!

More than 500 SMRT management and staff celebrated SG50 at 10 MRT stations and five bus interchanges

The highly sought-after SMRT SG50 buttons and fare card stickers that were distributed to passengers

2016: 22 MARCH FATAL ACCIDENT

We deeply regret the passing of our two colleagues, Nasrulhudin Bin Najumudin and Muhammad Asyraf Bin Ahmad Buhari on 22 March due to the failure to apply a vital safety procedure along the East-West Line. This is the first time a fatality involving our staff has happened on the NSEWL.

At around 11am, a signalling condition monitoring device near Pasir Ris MRT Station was triggered. Maintenance teams from the Permanent Way and Signal departments were sent to investigate. The teams moved in a single file along the walkway beside the track to the investigation location. Unfortunately, during the process, the accident occurred due to lapses in safety procedures.

On 23 March, we observed a minute of silence at our depots, interchanges and offices in memory of two of our own in the SMRT family. Our staff contributed in their various ways to the two families through donations and condolence messages. We expressed our deepest condolences to the families of Nasrulhudin and Muhammad Asyraf. As a mark of respect, the SMRT logo was darkened on all our online platforms.

We take responsibility and are deeply saddened by this tragic accident. Safety procedures are in place for the well-being and protection of our employees. A zero accident policy at the workplace is the conscious target that everyone in SMRT must work towards.

An SMRT Board Safety Review Committee was set up to look into all safety-related matters in SMRT Trains. The committee was involved in reviewing all frameworks, structures, processes and procedures, and seeking assurance that safety is accorded the highest attention and priority in our train operations and maintenance services.

We have also implemented additional safeguards for staff working on running tracks during traffic hours, made improvements to the audit process for track access, and formed a new department to plan, coordinate and control track access during non-traffic hours.

In the coming years, we seek to enhance the emphasis on safety procedures as we strive for zero fatalities. We owe it to ourselves to do so, and in remembrance of Nasrulhudin and Muhammad Asyraf.

Our employees at Bishan Depot sharing their condolences with the families of the deceased

2017: FLOODING IN TUNNEL

Train service between Ang Mo Kio and Newton MRT stations was disrupted on 7 October due to flooding in the train tunnels

At 5.30pm on Saturday, 7 October, service between Ang Mo Kio and Newton MRT stations was disrupted due to flooding of the train tunnels following a heavy downpour.

Early investigations revealed that a faulty float switch failed to trigger the water pumps, causing rainwater to flood the North-South Line tunnels leading towards Braddell station. Owing to the large volume of water that had accumulated in the lowest point of the tunnels between Bishan and Braddell MRT stations, assistance was sought from LTA, SCDF and PUB for additional resources to pump out the water. The extensive operation continued through the night and following morning. Train services at the affected stretch could only resume in the afternoon of 8 October after the water was completely drained.

A thorough internal investigation and discipline inquiry into the staff responsible for the pump maintenance at the Bishan-Braddell tunnel found that pump maintenance records had been falsified. Staff responsible were promptly dealt with in accordance with our disciplinary framework.

Learning from this incident, we have strengthened our maintenance processes and supervisory checks. We have made critical personnel changes to the management and maintenance team. A Joint Readiness Inspection team has been set up to ensure that maintenance and asset replacement are independently audited and monitored in a systematic way. Third-party Qualified Persons and Subject Matter Experts are being engaged to enhance quality control surveillance of all maintenance activities and conduct a system-wide review of critical systems. We have also stepped up leadership training for mid-level supervisors and managers.

Everyone in the organisation needs to have a strong sense of discipline to follow through maintenance procedures. We need to uphold our core values of responsibility and integrity in order to achieve higher standards in safety and reliability outcomes.

2017: TRAIN COLLISION AT JOO KOON MRT STATION

On the morning of 15 November, two trains collided at Joo Koon MRT station. A software glitch had resulted in the distance between two trains to be misjudged, leading to the collision.

A train heading in the direction of Tuas Link MRT station stopped at Joo Koon MRT station to detrain passengers due to an anomaly in the train signalling system. Shortly after, a second train stopped approximately 36 metres behind the first stationary train, as part of the signalling system protection that ensures a safe stopping distance between two trains. After the detrainment, the first train's doors closed and before it could move off, the second train moved forward and hit the stationary train.

Investigation findings indicated that the first train departed Ulu Pandan Depot with a software protection feature, but arrived at Joo Koon MRT station with the feature disabled. It was disabled when it passed by a faulty signalling circuit at Clementi, which had yet to be modified for compatibility with the new signalling system. The East-West Line is currently running on the old signalling system from Pasir Ris to Pioneer MRT stations, and the new signalling system from Joo Koon to Tuas Link. The disabling of this feature resulted in the first train giving off a train profile on the new signalling system of a three-car train instead of a six-car train, causing the second train to fail to keep a safe distance from the stationary train at Joo Koon station.

A total of 32 commuters and staff sustained light to moderate injuries. Colleagues from our Human Resources CARE team were present to provide assistance. The 27-strong team visited those admitted in the hospital on a daily basis to provide support to them and their families. Once patients were discharged, the team followed up to check in on their recovery, and offered assistance if needed.

The signalling system provider, Thales, apologised and has taken full responsibility for this incident. They have also given the assurance that the old and new signalling systems are respectively safe for operation.

Since 20 November 2017, the signalling systems on the Tuas West Extension have been separated from the rest of the East-West Line to reduce the complications of operating two different signalling systems on the same line. This separation will continue until the East-West Line re-signalling works are completed in 2018. SMRT, together with LTA and Thales, revised the engineering schedule.

Since December 2017, selected stations on the North-South and East-West Lines closed earlier on Fridays and Saturdays, and opened later on Saturdays and Sundays. There were also full closures of the stations on selected Sundays. This increases engineering and track access time in order to accelerate completion of re-signalling works on the East-West Line from end-2018 to June 2018.

INNOVATING

Moving with the Times

OPERATIONS TO INNOVATION

SMRT has been a public transport operator for three decades. We understand that a good public transport system is more than just about running the trains, buses and taxis. For commuters, it is about a safe, reliable and smooth journey. In this respect, we have introduced many touchpoint initiatives to increase public safety, improve customer service and enhance the overall commuter experience.

We are committed to ensure every commuter enjoys a seamless and convenient ride with SMRT

TITANS IN OUR NETWORK

With millions of passengers in transit through the MRT network every day, we need an efficient and accurate fare collection system to handle the high passenger volume. To meet this challenge, our engineers developed the Titan Automatic Fare Collection gates which have several smart features.

The Titans operate at 100 frames per second — faster than most CCTV cameras — which enable them to accurately detect and differentiate people from inanimate objects. The cutting-edge sensor technology can detect ankle movements which allow the gates not only to operate safely in high commuter traffic but to detect fare evasion as well.

The Titans are 10% more energy efficient, sleeker and require less maintenance than the old fare gates. We are progressively replacing the older generation fare gates with the Titans. You can spot them easily with their Light Emitting Diode (LED) and Liquid Crystal Display (LCD) screens.

The steely Titan fare gates at Bishan MRT station

"I'm really proud to be involved in the design and deployment of the new SMRT fare gates. I wouldn't have imagined doing this when I first joined as a Technical Officer in 1993.

We have accumulated fare system knowledge and engineering expertise within SMRT since 1987. Some of my Fare Systems teammates have been working in this area for more than 25 years. Throughout the years, we have built a very cohesive team, and are very supportive towards one another.

So, when it was time to replace the old gates, our Management sought the Board's approval to design, develop and produce our very own fare gates, and we did it successfully. We named our new 'babies' Titan."

HO WAI YIN
Principal Engineer
Fare Systems
Joined SMRT in 1993

TRACK YOUR TRAIN TRAVEL

In the early days, there were only two ways to tell which station you were at while on the train. One was to look for the station names through the window of the carriage and the other was to listen carefully to the announcements made by the Train Operators. This was changed later to pre-recorded announcements on cartridges that the Train Operators would manually play on arrival at a station.

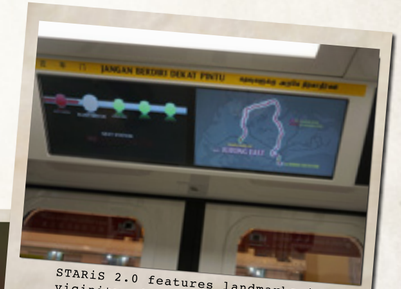
Eventually, an Automatic Trainborne Announcement System (ATAS) was implemented in 1994. It used the train speed signal to calculate the distance of the train to the approaching station and played the train announcements automatically upon arrival at the station. The ATAS was upgraded to the Automatic Train Information Service (ATIS), which used high capacity CompactFlash cards with larger storage capacity for higher quality audio recording.

An important innovation in ATIS is the Automatic Wheel Diameter Compensation Correction (AWDC). The distance between train stations is calculated based on the number of revolutions made by the wheel of the train. However, as the wheels undergo normal wear and tear during operation, the distance calculated would gradually decrease over time and become inaccurate. The AWDC automatically adjusts for the error and ensures that the Train Information Service is always accurate.

Real-time travel information was taken to a whole new level with the introduction of the SMRT Active Route Map Information System (STARiS) in 2008. The system, which was developed in-house, uses overhead displays to inform passengers of the arriving station and the direction of travel. It also indicates the side where the doors will open so that passengers can prepare to alight. In 2011, the installation of STARiS was completed in all trains in the NSEWL. The STARiS version 2.0 was launched in 2017. The new features enhance the travel experience for commuters by displaying comprehensive station information to help them navigate through the station to street level upon arrival.

STARiS displays real-time travel information, enhancing the travel experience on our trains for commuters

STARiS informs commuters of the next station and the direction of travel



STARiS 2.0 features landmarks in the vicinity of a station when the train arrives at a station

Mohamed Bin Mohamed Jadi joined SMRT in 1987 as a Technical Officer in Communications Maintenance. He became involved in product development two years later.

Safety & Service Excellence
Mastery
Responsibility & Respect
Teamwork
nurture
Integrity

SMRT

"The idea for STARiS was hatched in 1994 but was not developed till much later as the data line that runs through the entire train length required for STARiS was not available then.

Subsequently, this was included in the design of all new trains starting from the second generation trains, and added to our first generation train fleet during their mid-life upgrade in 2006. After all the required systems were in place, STARiS came into use."

MOHAMED BIN MOHAMED JADI
Senior Principal Engineer
Systems & Technology
Joined SMRT in 1987

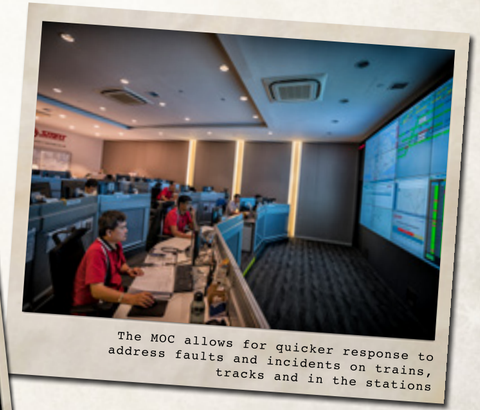
OPERATING FOR TOMORROW

We recognise that technology-based innovations are essential in achieving operational and safety targets.

In 2015, we marked a key milestone with the opening of the Singapore Bus Training and Evaluation Centre (SG BTEC), Singapore's first team-based bus training centre. SG BTEC features state-of-the-art simulators and an integrated service control centre to enable customised team and scenario-based learning to promote better management of bus service safety and reliability. These initiatives are in line with SkillsFuture, the national effort to deepen skills that are vital to Singapore's key industries.

We also established a new Maintenance Operation Centre (MOC) in August 2015 to better coordinate and provide stronger support to our maintenance colleagues responding to rail incidents. Our rail engineering experts can now guide staff attending to faults with more precise technical advice. The MOC provides round-the-clock health status of each train and critical components across the rail network.

A Bus Captain undergoing simulator training at SG BTEC



The MOC allows for quicker response to address faults and incidents on trains, tracks and in the stations

Lim See Teng joined SMRT Buses in 2014. He formed part of the pioneer SG BTEC team that oversees the training development for Bus Captains.

Safety & Service Excellence
Mastery
Responsibility & Respect
Teamwork
nurture
Integrity

What is your typical day at work like?

My role is to ensure that trainings are conducted in accordance to lesson plans and simulators are in working condition.

How do you think SMRT Bus Captains have benefited from the training?

At SG BTEC, all Bus Captains will undergo a comprehensive and structured training programme that helps to enhance their overall road safety awareness. They are trained using simulators that help to prepare them to react to different scenarios on the road.

What is your greatest satisfaction at work?

My greatest satisfaction comes from ensuring that Bus Captains walk out the doors of SG BTEC fully trained to bring about a safe commuting journey and that they display professionalism at work.

LIM SEE TENG
Executive
Training Development
Joined SMRT in 2014

Adventurers at heart, both Neo Kim Hee and Muhammad Farhizzam Bin Selamat seeked new challenges at work when they decided to join the region's first MOC. They work closely together in responding to rail incidents on the NSEWL.

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What challenges do you face at work?

Kim Hee and Farhizzam: Our greatest challenge lies in coordinating train faults simultaneously. This is not possible without teamwork. We work in groups of six and rotate our duties. We need to have mutual understanding and support for one another to ensure a smooth journey for our commuters.

What is your greatest satisfaction at work?

KH: It has to be managing train faults so that they remain well under control. We need to quickly ensure that trains are assigned to the respective depots for maintenance work in a timely manner.

F: Being able to provide pieces of technical advice to the controllers at MOC in rectifying train faults and preventing potential delays gives me satisfaction.

NEO KIM HEE
Engineering Maintenance Manager
NSEWL Control Operations
Joined SMRT in 1990

MUHAMMAD FARHIZZAM BIN SELAMAT
Senior Engineer
NSEWL Control Operations
Joined SMRT in 2014

BEYOND OUR NETWORK & BORDERS

CONNECTING TO SENTOSA

The next time you visit Sentosa, make it a point to take the bright and cheery monorail that takes you on an enjoyable and scenic ride between HarbourFront and the picturesque Siloso Beach. The monorail is maintained and serviced by our SMRT Engineering team. During the construction phase, we participated in the design review, installation and pre-delivery inspections of the monorail system. Today, the Sentosa Express is a safe, modern and efficient system capable of meeting the growing number of visitors to the island resort.

We were appointed to provide maintenance services for the Sentosa monorail in 2008

Norman joined the company in 1986. In 2008, he was roped in to manage the maintenance of the Sentosa Express.

"SMRT has been the maintenance provider of the Sentosa Express since June 2008.

The monorail is a different system from the MRT. When we took over operations, we had to read through the manuals to familiarise ourselves with the system and convert standards into maintenance checklists.

My team and I are proud to keep the Sentosa Express running smoothly with our expertise and experience."

NORMAN FOO
Manager
Systems & Technology
Joined SMRT in 1986

DO THE KALLANG WAVE

The Kallang Wave Mall at the Singapore Sports Hub is SMRT's first retail development outside the transport network. Located next to the Stadium MRT station on the Circle Line, this waterfront mall offers a range of exciting shopping and dining options that caters to families, youths and seniors.

The mall is operated and leased by SMRT Alpha Pte Ltd, a partnership between SMRT Investments and Alpha Plus Investments. The 41,000 square metres megamall houses home-grown and international brands such as FairPrice Xtra, H&M and UNIQLO. Shoppers will also find a rooftop water park and a challenging rock climbing wall that stretches from the basement to the third floor.

Kallang Wave Mall at the Singapore Sports Hub opened to the public in 2014

MAKE GREAT STRIDES

The newest addition to the SMRT family, Strides Transportation (Strides), marks our foray into the private hire vehicle business, providing limousine, chauffeured and car rental services. In a move to complement our taxi business, Strides fulfils a growing commuter demand for point-to-point transportation.

Strides' fleet comprises luxury cars such as the Lexus ES Hybrid and Toyota Vellfire for the upmarket and corporate clientele as well as standard Toyota Altis sedans to provide chauffeured and car rental services. In 2017, premium bus services under Bus-Plus Services were subsumed under Strides. This completes our suite of vehicles, providing commuters with a whole fleet at their call.

Strides' fleet includes Toyota Altis sedans

GOING INTERNATIONAL

We have been busy on the international front as well. SMRT International provides consultancy and engineering expertise in train operations and maintenance to several overseas customers. We have steadily expanded our international footprint in the Middle East, Europe and Asia Pacific regions. Some of our noteworthy projects include the Personal Rapid Transit (PRT) system, a fully automated, zero-carbon vehicle system for Masdar City, and the first of its kind in the Middle East; and potentially the Jakarta Eco Transport Monorail, one of Indonesia's most important transportation infrastructure projects.

The PRT in Masdar City is a fully-automated, zero-carbon vehicle system

One of our past projects in the Middle East was the Palm Jumeirah Monorail in Dubai — the first monorail to be constructed in the Middle East. Shahrin Abdol Salam was part of the project team.

"The reputation of our excellence in Singapore, in terms of our quality of services, friendliness of staff, professionalism and reliability of our network, were contributing factors in helping us clinch the Palm Jumeirah Monorail Project.

The project was the first of its kind in the Middle East. Our involvement ranged from operations and maintenance consultancy during the construction phase, to the development of the operations procedures, maintenance procedures and competency management system.

With me was a team from SMRT. With our key roles and expertise identified, we were primarily selected based on our level of technical, engineering and operational experience, and competence. We also had to work alongside the locally-hired staff and hence, had to possess supervisory skills to train and guide the rest of the team.

Working overseas for SMRT was a new frontier. There were many lessons learnt for SMRT ranging from business development strategies to staff mobilisation to working in a multi-nationality team in an overseas environment. We did not know what to expect but we all knew we had to excel; to be the best we can be, as an individual and as an organisation. We all knew we had to carry ourselves and be held in high regard. Anything less would not have been acceptable."

SHAHRIN ABDOL SALAM
Senior Vice President
Plans & Development
Joined SMRT in 1997

KEEPING SMRT ON TRACK

Singapore Rail Engineering (SRE) was established to capitalise on our rail engineering expertise to offer specialised engineering services to support and maintain rail networks locally and abroad.

SRE was set up in June 2014 as an Engineering, Procurement and Construction unit to provide Maintenance, Repair and Overhaul (MRO) Services, as well as develop engineering solutions for SMRT and other clients.

SRE has teamed up with Toshiba Corporation to form Railise Pte Ltd, a springboard for the global and exclusive sale of Toshiba's high-tech Permanent Magnetic Synchronous Motor (PMSM) propulsion system. The PMSM is more energy efficient, quieter and requires less maintenance.

In April 2015, SRE also partnered Faiveley Transport to market and supply MRO Services for Rolling Stock Components in Southeast Asia. As these countries develop their rail networks, the demand for MRO Services is expected to grow significantly over the next 10 years.

SRE will be refurbishing our second generation trains

FOOTPRINT IN THE URBAN MOBILITY SPACE

SMRT believes in providing commuters seamless first-and-last-mile connectivity.

SMRT Services established a joint venture in 2016 with 2 Getthere Holding to market, install, operate and maintain autonomous vehicle transport systems in Singapore and across the Asia-Pacific region.

In line with the Government's aim of making Singapore a living lab to develop and test new urban solutions, SMRT Services together with NTU Singapore and JTC joined forces to develop innovative solutions that seamlessly integrate multiple modes of transportation for better connectivity and accessibility. The new 'Mobility-as-a-Service Lab' will be the first-of-its-kind in the region aimed at improving commuters' travel experience by seamlessly integrating train and bus networks with next-generation transport modes.

2getthere Asia was set up to bring the Automated Vehicle systems to customers in Singapore and the Asia-Pacific region

Hong Jia An joined SMRT in 2014 with the aspiration to make a difference in the urban mobility space and transform how commuters experience travelling around Singapore.

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Teamwork
nurture
Integrity

SMRTNI

"As the Project Manager for the autonomous vehicle trial deployment in Singapore, I am happy and proud that my involvement brings convenience to commuters and contributes to a better commuting experience.

With the emergence of urban mobility, SMRT continues to be a first mover by leading the 'Mobility-as-a-Service Lab' to improve the commuter's travel experience. I recall the first time we successfully completed the trial on the autonomous vehicle prototype at Kim Chuan Depot. After weeks of testing, we were encouraged by the result.

As the leading multi-modal transport provider, I am confident that SMRT will deliver world-class transport service that is safe and reliable through its innovation in urban transportation."

HONG JIA AN
Manager
CCL Maintenance
Joined SMRT in 2014

A GREENER FUTURE

SMRT IS GREEN

The launch of a company-wide 'SMRT is Green' programme in 2008 reaffirmed our commitment to environmentally sustainable practices. As part of our efforts to promote environmental sustainability, we adopt green practices in our operations.

Our Euro V-compliant buses produce less emissions and make for a greener journey

We were the first public transport operator in Singapore to introduce Euro V-compliant buses to our fleet

GREEN VEHICLES

Managing our carbon emissions is a priority. We are always on the lookout for solutions and technologies to ensure our fleet of buses and taxis minimise their emissions.

In 2008, we were the first public transport operator in Singapore to introduce Euro V-compliant buses. Now, SMRT has more than 600 of such vehicles on the road. In that same year, we added 100 Compressed Natural Gas taxis to our fleet. In 2013, SMRT's taxi partners got behind the wheels of hybrid vehicles for the first time with the Toyota Prius, which has allowed us to achieve greater fuel efficiency and cleaner emissions.

Compressed Natural Gas taxis are a cleaner alternative to diesel-powered vehicles

With more than 1,500 Toyota Prius Hybrid taxis, we are the largest Hybrid fleet owner in Singapore

DID YOU KNOW?

Green Stations, Shops and Offices

This Nissan Civilian electric bus was on trial for almost eight months

We ran an eight-month electric bus trial back in 2002 to test the feasibility of eco-buses.

Woodlands MRT station became the first eco-MRT station in our network

We are mindful that the premises where we operate from have an impact on the environment.

Station designs can be environmentally sustainable, and we attained the Building Construction Authority (BCA) Green Mark Award for our existing MRT stations. In 2013, Woodlands became the first MRT station in Singapore to receive the BCA Greenmark (Gold) Award and Ang Mo Kio MRT station followed a year later. As eco-MRT stations, they are characterised by features such as improved air ventilation, water-efficient washrooms and recycling facilities.

Apart from the above, our headquarters is Project: Eco-Office certified — a testament to our efforts in promoting environmentally friendly work habits. We are also currently looking to certify our depots as Eco-Offices.

DID YOU KNOW?

Energy Reduction in our Stations

We have been incorporating green practices in our network.

We have plans to install highly energy-efficient LED lighting systems at stations that can potentially **lower energy consumption by 50%**.

Replacing plasma screens in our stations to **LCD or LED screens**.

Replacing chillers in City Hall MRT station with newer models with **optimised capacity** to achieve higher energy efficiency.

Employing district cooling at Raffles Place MRT station, which uses **cooled water** to cool the air, thereby reducing the consumption of electricity.

Switching off the Rail Travel Information System screens in our stations during **non-revenue hours**.

SMRT CORPORATION

MOVING PEOPLE, ENHANCING LIVES

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